

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A flat-type display comprising;
a first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, in which
a spacer is disposed between a first panel effective field and a second panel effective field that work as a display portion;~~and,~~
said ~~wherein the~~ spacer is fixed to the first panel effective field and/or the second panel effective field with a low-melting-point metal material layer,
wherein a top surface of the spacer is electrically connected to the first panel through a conductive material layer and a low-melting-point metal material, the conductive material layer being between the top surface of the spacer and the low-melting-point metal material layer,
wherein another top surface of the spacer is electrically connected to an electrically conductive layer formed on the second panel through a low-melting-point metal material layer and a conductive material layer, the conductive material layer being between the other top surface of the spacer and the low-melting-point metal material layer.
2. (Original) The flat-type display according to claim 1, in which the spacer is formed of ceramics or glass.
3. (Original) The flat-type display according to claim 1, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.
4. (Original) The flat-type display according to claim 1, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.
5. (Original) The flat-type display according to claim 1, in which

the flat-type display is a cold cathode field emission display,
the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,
the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

6. (Original) The flat-type display according to claim 1, in which
a plurality of spacer holders for temporarily holding the spacer are formed in the first panel effective field and/or the second panel effective field.

7. (Original) The flat-type display according to claim 6, in which the spacer is formed of ceramics or glass.

8. (Original) The flat-type display according to claim 6, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

9. (Original) The flat-type display according to claim 6, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

10. (Original) The flat-type display according to claim 6, in which
the flat-type display is a cold cathode field emission display,
the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,
the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

11. (Currently Amended) A method for manufacturing a flat-type display, said flat-type display comprising a first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, a spacer being disposed between a first panel effective field and a second panel effective field that work as a display portion,

said method comprising;

(A) arranging a spacer with a conductive material layer ~~a low-melting-point metal material layer~~ formed on one top surface thereof and a low-melting-point metal material layer formed on the top surface of the conductive material layer, on the first panel effective field, then,

(B) heating the low-melting-point metal material layer to melt the same and thereby fixing said spacer to the first panel effective field, the top surface of the spacer being electrically connected to the first panel through the conductive material layer and the low-melting-point metal material layer, and then,

(C) placing the second panel on the other top surface of the spacer, the other top surface of the spacer being electrically connected to an electrically conductive layer formed on top surface of the second panel through a low-melting-point metal material layer and a conductive material layer, the conductive material layer being between the other top surface of the spacer and low-melting-point metal material layer, bonding the first panel and the second panel to each other in their circumferential portions, and vacuuming the space sandwiched between the first panel and the second panel.

12. (Original) The method for manufacturing a flat-type display according to claim 11, in which the spacer is formed of ceramics or glass.

13. (Original) The method for manufacturing a flat-type display according to claim 11, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

14. (Original) The method for manufacturing a flat-type display according to claim 11, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

15. (Original) The method for manufacturing a flat-type display according to claim 11, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

16. (Original) The method for manufacturing a flat-type display according to claim 11, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

17. (Original) The method for manufacturing a flat-type display according to claim 11, in which

a second low-melting-point metal material layer is formed on the other top surface of said spacer, and,

the second low-melting-point metal material layer is melted together when the first panel and the second panel are bonded to each other in their circumferential portions in said step (C), and said spacer is thereby fixed to the second panel effective field.

18. (Original) The method for manufacturing a flat-type display according to claim 17, in

which the spacer is formed of ceramics or glass.

19. (Original) The method for manufacturing a flat-type display according to claim 17, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

20. (Original) The method for manufacturing a flat-type display according to claim 17, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

21. (Original) The method for manufacturing a flat-type display according to claim 17, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

22. (Original) The method for manufacturing a flat-type display according to claim 17, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

23. (Original) The method for manufacturing a flat-type display according to claim 11, in which a plurality of spacer holders for temporarily holding the spacer are formed in the first panel effective field and/or the second panel effective field.

24. (Original) The method for manufacturing a flat-type display according to claim 23, in which the spacer is formed of ceramics or glass.

25. (Original) The method for manufacturing a flat-type display according to claim 23, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

26. (Original) The method for manufacturing a flat-type display according to claim 23, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

27. (Original) The method for manufacturing a flat-type display according to claim 23, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

28. (Original) The method for manufacturing a flat-type display according to claim 23, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

29. (Currently Amended) A method for manufacturing a flat-type display, said flat-type display comprising a first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, a spacer being disposed between a first panel effective field and a second panel effective field that work as a display portion,

said method comprising;

(A) providing the first panel in which a low-melting-point metal material layer is formed in a portion where the spacer is to be fixed in the first panel effective field,

(B) forming a conductive material layer on the top surface of the spacer that is to be fixed to the low-melting-point metal material layer formed in a portion where the spacer is to be fixed in the first panel effective field,

(BC) arranging the spacer on said low-melting-point metal material layer with the conductive material layer between the spacer and the low-melting-point metal material layer, and heating the low-melting-point metal material layer to melt the same, and thereby fixing said spacer to the first panel effective field, the top surface of the spacer being electrically connected to the first panel through the conductive material layer and the low-melting-point metal material, and then,

(ED) placing the second panel on the other top surface of the spacer, the other top surface of the spacer being electrically connected to an electrically conductive layer formed on top surface of the second panel through a low-melting-point metal material layer and a conductive material layer, the conductive material layer being between the other top surface of the spacer and low-melting-point metal material layer, bonding the first panel and the second panel in their circumferential portions and vacuuming the space sandwiched between the first panel and the second panel.

30. (Original) The method for manufacturing a flat-type display according to claim 29, in which the spacer is formed of ceramics or glass.

31. (Original) The method for manufacturing a flat-type display according to claim 29, in

which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

32. (Original) The method for manufacturing a flat-type display according to claim 29, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

33. (Original) The method for manufacturing a flat-type display according to claim 29, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

34. (Original) The method for manufacturing a flat-type display according to claim 29, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

35. (Original) The method for manufacturing a flat-type display according to claim 29, in which

a second low-melting-point metal material layer is formed on a portion where the spacer is to be fixed in the second panel effective field, and,

the second low-melting-point metal material layer is melted when the first panel and the second panel are bonded in their circumferential portions in said step (C), and thereby the spacer is

fixed to the second panel effective field.

36. (Original) The method for manufacturing a flat-type display according to claim 35, in which the spacer is formed of ceramics or glass.

37. (Original) The method for manufacturing a flat-type display according to claim 35, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

38. (Original) The method for manufacturing a flat-type display according to claim 35, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

39. (Original) The method for manufacturing a flat-type display according to claim 35, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

40. (Original) The method for manufacturing a flat-type display according to claim 35, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

41. (Original) The method for manufacturing a flat-type display according to claim 29, in which

a plurality of the spacer holders for temporarily holding the spacer are formed in the first panel effective field and/or the second panel effective field.

42. (Original) The method for manufacturing a flat-type display according to claim 41, in which the spacer is formed of ceramics or glass.

43. (Original) The method for manufacturing a flat-type display according to claim 41, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of frit glass.

44. (Original) The method for manufacturing a flat-type display according to claim 41, in which the first panel and the second panel are bonded to each other in their circumferential portions through a bonding layer made of a low-melting-point metal material.

45. (Original) The method for manufacturing a flat-type display according to claim 41, in which

the flat-type display is a cold cathode field emission display,

the first panel is an anode panel in which an anode electrode and a phosphor layer are formed, and,

the second panel is a cathode panel in which a plurality of cold cathode field emission devices are formed.

46. (Original) The method for manufacturing a flat-type display according to claim 41, in which

the flat-type display is a cold cathode field emission display,

the first panel is a cathode panel in which a plurality of cold cathode field emission devices are formed, and,

the second panel is an anode panel in which an anode electrode and a phosphor layer are formed.

47. (New) The flat-type display according to claim 1,
wherein the first panel comprises a substratum, a partition wall formed on the substratum between one phosphor layer and another phosphor layer, and a light absorbing layer formed between the substratum and the partition wall.